
AROUND THE AREA

Studying the secret life of clouds

By Glenn Roberts Jr.
STAFF WRITER

LIVERMORE — Will Bolton doesn't look for animal shapes or faces in cloud formations.

"When I look at the clouds, I'm thinking: 'Is that a good set of clouds to go fly with?'"

A scientist at Sandia National Laboratories, Bolton is technical director for a high-flying research program that is unraveling the secrets of the skyward realm where clouds dwell.

Using a pilotless airplane called "Altus," Bolton and a team of cloud researchers hope to learn how clouds store and release energy.

And by deciphering cloud behavior, the research may improve scientific understanding of global warming and weather prediction.

"The principal source of un-

certainty in predicting (global warming) is in the role clouds play," Bolton said. "The goal of the whole program is to improve understanding of radiant energy in clouds."

On Thursday, Altus will fly one of several missions above the Hawaiian island of Kauai to study cirrus clouds, which are wispy, high-altitude clouds made of ice crystals.

Speaking from the Pacific Missile Range Facility in Kauai on Tuesday, Bolton said cirrus clouds are important to the research program because they are at the boundary of two layers of the Earth's atmosphere: the troposphere and stratosphere.

"(Cirrus clouds) are involved in the process of moving water vapor between the troposphere and stratosphere," he said, and their height makes them diffi-

cult to study.

Altus, which carries a payload of high-tech sensors and gadgetry mapping and analyzing cloud formations, typically flies at an altitude of 50,000 feet or higher.

Nearly 40 researchers have contributed to the cloud-study program, including scientists from the U.S. Department of Energy, NASA, a dozen universities and four private companies.

Lawrence Livermore and Los Alamos laboratories also have contributed to the effort, Bolton said. Livermore Lab helped to develop a laser-radar, known as a Cloud-Detection LIDAR, to help detect clouds.

Other sensors can study the thickness of clouds and make it possible to study water particle and droplet sizes within clouds and to capture a cross-section of a cloud.
